

IN THE CLAIMS:

Please cancel Claims 28 - 38 without prejudice. Please amend Claims 1, 2, 9, 13, 15 - 19, 23, 26, and 27, as set forth below.

1. (Once Amended / Presently Amended) A method of chemical-mechanical jet etching of patterned features in a semiconductor workpiece, ~~by~~ wherein said method comprises impinging a machining etchant fluid upon a surface of said workpiece, whereby material is removed from said surface of said workpiece at an etch rate of at least about 10 microns per minute, and forming at least one three-dimensional feature on said surface of said semiconductor workpiece.
2. (Once Amended / Presently Amended) The method of Claim 1, wherein ~~such~~ said workpiece comprises a material selected from the group consisting of a silicon wafer or gallium arsenide or other semiconductor substrate, silicon-on-insulator ("SOI"), SiO₂, glass, quartz, pyrex, ceramic, or glass bonded to a substrate, conductor, or insulator.
3. (Once Amended / Presently Amended) The method of Claim 1, wherein said workpiece is first masked with a patterned protective mask, ~~such~~ so that material is selectively removed from said surface only in areas which are not covered by said mask.
4. (Original) The method of Claim 1 or Claim 3, wherein said machining etchant comprises a slurry of solid particulate material in a liquid.
5. (Original) The method of Claim 4, wherein said slurry is a suspension or dispersion.

6. (Original) The method of Claim 1 or Claim 3, wherein said machining etchant comprises solid particulate material in a carrier gas stream.
7. (Original) The method of Claim 4, wherein said liquid is a chemical etchant for the material of said workpiece.
8. (Original) The method of Claim 4, wherein said liquid is not a chemical etchant for said workpiece material, but acts as a solvent for a compound which is a chemical etchant for the material of said workpiece.
9. (Once Amended / Presently Amended) The method of Claim 7, wherein said chemical etchant is a compound selected from the group consisting of KOH, NaOH, HF, HNA(an aqueous solution of about 7 wt % HF, about 30 wt.% HNO₃, and about 10 wt.% CH₃COOH), TMAH (Tetramethyl Ammonium Hydroxide), EDP (Ethylene Diamine Pyrochatechol), and amine gallates.
10. (Original) The method of Claim 1 or Claim 3, wherein said machining etchant is delivered to a surface of said workpiece by one or more nozzles.
11. (Original) The method of Claim 4, wherein said machining etchant is delivered to a surface of said workpiece by one or more nozzles.
12. (Original) The method of Claim 6, wherein said machining etchant is delivered to a surface of said workpiece by one or more nozzles.

13. (Once Amended / Presently Amended) The method of Claim 10, wherein one or more of ~~such~~ said nozzles is a dual nozzle, having a central orifice surrounded by an annular orifice, through which orifices jets of either a single type of machining etchant or of two different types of machining etchants ~~can be~~ are delivered to the said workpiece surface.

14. (Original) The method of Claim 13, wherein a selection of pressures and viscosities of a first machining etchant supplied to the central orifice and a second machining etchant supplied to the annular orifice of said at least one dual nozzle, results in distinct inner and outer jets, whereby the outer jet confines the inner jet to a narrower dimension than would occur in the absence of the outer jet.

15. (Once Amended / Presently Amended) The method of Claim 10, wherein said machining etchant is delivered to the surface of said workpiece as said nozzle or nozzles and ~~such~~ said workpiece are rotated, translated, or rastered relative to one other.

16. (Once Amended / Presently Amended) The method of Claim 1 or 3, wherein said machining etchant is delivered to the surface of said workpiece as said workpiece is rotated, translated, or rastered past said nozzle or nozzles, ~~which~~ and wherein said nozzle or nozzles are stationary.

17. (Once Amended / Presently Amended) The method of Claim 1 or 3, wherein said machining etchant is delivered to the surface of said workpiece as said nozzle or nozzles are rotated, translated, or rastered past said workpiece, ~~which~~ and wherein said workpiece is stationary.

18. (Once Amended / Presently Amended) A method of chemical-mechanical jet etching a semiconductor workpiece, ~~by~~ wherein said method comprises impinging a machining etchant fluid upon a surface of said workpiece, whereby workpiece material is removed uniformly from said surface of said workpiece, whereby the thickness of said workpiece is uniformly decreased from its original value to a desired smaller thickness, ~~at~~ and wherein said chemical-mechanical jet etching of said semiconductor workpiece results in a minimum etch rate of at least about 10 microns per minute.

19. (Once Amended / Presently Amended) The method of Claim 18, wherein ~~such~~ said workpiece comprises a material selected from the group consisting of a silicon wafer or gallium arsenide or other semiconductor substrate, silicon-on-insulator ("SOI"), SiO₂, glass, quartz, pyrex, ceramic, or glass bonded to a substrate, conductor, or insulator.

20. (Original) The method of Claim 18, wherein said machining etchant comprises a slurry of solid particulate material in a liquid.

21. (Original) The method of Claim 20, wherein said liquid is a chemical etchant for said workpiece material.

22. (Original) The method of Claim 20, wherein said liquid is not a chemical etchant for said workpiece material, but acts as a solvent for a compound which is a chemical etchant for said workpiece material.

23. (Once Amended / Presently Amended) The method of Claim 20, wherein said dissolved chemical etchant is a compound selected from the group consisting of KOH, NaOH, HF, HNH, TMAH (Tetramethyl Ammonium Hydroxide), EDP (Ethylene Diamine Pyrochatechol), and amine gallates.

24. (Original) The method of Claim 18, wherein said machining etchant comprises solid particulate material in a carrier gas stream.

25. (Original) The method of any of Claims 18, 20, or 24, wherein said machining etchant is delivered to the surface of said workpiece by one or more nozzles.

26. (Once Amended / Presently Amended) The method Claim 20, wherein at least one of ~~such~~ said nozzles is a dual nozzle, having a central orifice surrounded by an annular orifice, through which orifices either a single type of machining etchant or two different types of machining etchants ~~can be~~ are delivered to ~~the~~ said workpiece surface.

27. (Once Amended / Presently Amended) The method of any of Claims 18, 20, or 24, wherein said machining etchant is delivered to the surface of said workpiece as said nozzle or nozzles and ~~such~~ said workpiece are rotated, translated, or rastered relative to one other.